CLAIMS:

1. A method of detecting an amyloidgenic conformational change of a protein, the method comprising:

forming a sample film on a substrate, the sample film comprising a protein that arises an amyloidgenic conformational change, a fragment of said protein, a variant of said protein, said protein added with a tag, or an antibody protein against said protein;

placing said substrate comprising said sample film to a force sensor; and

detecting change(s) in tension and/or elasticity of said sample film when a test sample is subjected to said sample film by said force sensor.

2. The method according to Claim 1, wherein said force sensor is a mechanochemical sensor.

3. The method according to Claim 1, wherein said protein that arises an amyloidgenic conformational change is a protein selected from the group consisting of amyloid β protein, immunoglobulin light chain protein, amyloid A protein, transthyretin protein, lysozyme, BriL protein, cystatin C protein, scrapie protein, β2 microglobulin, apolipoprotein A1, gelsolin, pancreatic islet amyloid protein, fibrinogen, prolactin, insulin, calcitonin, atrial natriuretic peptide, α-synuclein, prion protein, huntingtin protein, superoxide dismutase, α1-antichymotrypsin, and tau protein.

4. The method according to Claim 3, wherein said protein that arises an amyloidgenic conformational change is amyloid β protein.

5. A method of searching a substance having an activity that affects to an amyloidgenic conformational change, the method comprising:

forming a sample film on a substrate, the sample film comprising a protein that arises an amyloidgenic conformational change, a fragment of said protein, a variant of said protein, said protein added with a tag, or an antibody protein against said protein;

placing said substrate comprising said sample film to a force sensor; and

detecting change(s) in tension and/or elasticity of said sample film when a test sample is subjected to said sample film by said force sensor.

6. The method according to Claim 5, wherein said force sensor is a mechanochemical sensor.

7. The method according to Claim 5, wherein said protein that arises an amyloidgenic conformational change is a protein selected from the group consisting of amyloid β protein, immunoglobulin light chain protein, amyloid A protein, transthyretin protein, lysozyme, BriL protein, cystatin C protein, scrapie protein, β2 microglobulin, apolipoprotein A1, gelsolin, pancreatic islet amyloid protein, fibrinogen, prolactin, insulin, calcitonin, atrial natriuretic peptide, α-synuclein, prion protein, huntingtin protein, superoxide dismutase, α1-antichymotrypsin, and tau protein.

8. The method according to Claim 7, wherein said protein that arises an amyloidgenic conformational change is amyloid β protein.

9. A method of searching a therapeutic or diagnostic agent for amyloid-related diseases, the method comprising:

forming a sample film on a substrate, the sample film comprising a protein that arises an amyloidgenic conformational change, a fragment of said protein, a variant of said protein, said protein added with a tag, or an antibody protein against said protein;

placing said substrate comprising said sample film to a force sensor; and

detecting change(s) in tension and/or elasticity of said sample film when a test sample is subjected to said sample film by said force sensor.

10. The method according to Claim 9, wherein said force sensor is a mechanochemical sensor.

11. The method according to Claim 9, wherein said protein that arises an amyloidgenic conformational change is a protein selected from the group consisting of amyloid β protein, immunoglobulin light chain protein, amyloid A protein, transthyretin protein, lysozyme, BriL protein, cystatin C protein, scrapie protein, β2 microglobulin, apolipoprotein A1, gelsolin, pancreatic islet amyloid protein,

fibrinogen, prolactin, insulin, calcitonin, atrial natriuretic peptide, α-synuclein, prion protein, huntingtin protein, superoxide dismutase, α1-antichymotrypsin, and tau protein.

12. The method according to Claim 11, wherein said protein that arises an amyloidgenic conformational change is amyloid β protein.

13. A sample film comprising a protein that arises an amyloidgenic conformational change.

14. The sample film according to Claim 13, wherein said protein that arises an amyloidgenic conformational change is amyloid β protein.

15. The sample film according to Claim 14, wherein said sample film is formed by depositing said amyloid β protein using an electrospraying method.